

Chemistry I  
Practice Stoichiometry Test A

Answer the following questions on the answer sheet provided. Show all WORK and proper factor-label process.

1. What grams of water are produced when methane ( $\text{CH}_4$ ) burns to produce 550 liters of  $\text{CO}_2$ ?

$$\text{CH}_4 + 2 \text{O}_2 \longrightarrow \text{CO}_2 + 2 \text{H}_2\text{O}$$

$$550 \text{ L CO}_2 \times \frac{1 \text{ mol CO}_2}{22.4 \text{ L CO}_2} \times \frac{2 \text{ mol H}_2\text{O}}{1 \text{ mol CO}_2} \times \frac{18 \text{ g H}_2\text{O}}{1 \text{ mol H}_2\text{O}} =$$

883.9 g H<sub>2</sub>O

2. If 5 grams of sodium hydrogen carbonate (baking soda) are decomposed when making chocolate chip cookies; how many liters of carbon dioxide are released?

$$2 \text{NaHCO}_3 \xrightarrow{\Delta} \text{Na}_2\text{O} + 2 \text{CO}_2 + \text{H}_2\text{O}$$

$$5 \text{ g NaHCO}_3 \times \frac{1 \text{ mol NaHCO}_3}{84 \text{ g NaHCO}_3} \times \frac{2 \text{ mol CO}_2}{2 \text{ mol NaHCO}_3} \times \frac{22.4 \text{ L CO}_2}{1 \text{ mol CO}_2} =$$

1.3 L CO<sub>2</sub>

3. Calculate the number of grams of copper that would be produced by the reduction of 250 grams of copper (I) oxide by hydrogen.

$$\text{Cu}_2\text{O} + \text{H}_2 \longrightarrow 2 \text{Cu} + \text{H}_2\text{O}$$

$$250 \text{ g Cu}_2\text{O} \times \frac{1 \text{ mol Cu}_2\text{O}}{144 \text{ g Cu}_2\text{O}} \times \frac{2 \text{ mol Cu}}{1 \text{ mol Cu}_2\text{O}} \times \frac{64 \text{ g Cu}}{1 \text{ mol Cu}} =$$

222.2 g Cu

4. What weight potassium is needed to produce 500 liters of hydrogen?

$$2 \text{K} + 2 \text{H}_2\text{O} \longrightarrow 2 \text{KOH} + \text{H}_2$$

$$500 \text{ L H}_2 \times \frac{1 \text{ mol H}_2}{22.4 \text{ L H}_2} \times \frac{2 \text{ mol K}}{1 \text{ mol H}_2} \times \frac{39 \text{ g K}}{1 \text{ mol K}} =$$

1741.1 g K